Introduction to and Principles of Confinement

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Confinement is the cornerstone of APHIS' regulatory approach to allowing the safe introduction into the environment of genetically engineered organisms during the research and development stage. The origins of and history of application of this concept as it applies to field testing of genetically engineered crops will be traced from its early introduction by the National Research Council in 1989, its adoption into guidelines by the USDA Agricultural Biotechnology Research Advisory Committee in 1991, the exploration of crop-specific confinement measures through workshops, and guidance on the use of such measures for different crops and traits as communicated in APHIS User's Guides, Federal Register notices and on our website. Examples of confinement measures currently in use for field tests of corn, rice, and/or safflower plants expressing products intended for pharmaceutical and/or industrial uses will be presented to demonstrate how applicants and APHIS are applying these concepts to plants that have different pollination mechanisms and outcrossing frequencies, and how the application of multiple or redundant measures has increased along with the scale of such releases. Lastly the presentation will touch on the future challenges of considering the use of genetic confinement measures, effects of scale, and modeling for evaluation of confinement measures.